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Date created: April 2013
C & GE Approved: May 13, 2013
Board Approved: June 12, 2013
State Approved: July 4, 2013

Administration of Justice (ADMJ) 1506 Introduction to Forensics (3 Units) CSU

Prerequisite or Co-requisite: None

Advisory: Successful completion of English 1500 strongly recommended

Total Hours: 48 hours lecture

Catalog Description: This course provides an introduction to the role of forensics in criminal investigations. It examines the methods utilized in the forensic analysis of crime scenes, pattern evidence, instruments, firearms, questioned documents and controlled substances. C-ID: AJ 150

Type of Class/Course: Degree Credit

Text such as: Young, Tina, and P. J. Ortmeier. *Crime Science Investigation: The Forensic Technician's Field Manual*. Upper Saddle River, New Jersey: Pearson Education Ltd. 2011. Print.

Additional Required Materials: None

Course Objectives:

By the end of the course, a successful student will be able to:

1. Identify and explain the role of forensic specialists in the Criminal Justice System,
2. Identify the various types of crime scenes and differentiate between crime scene process versus crime scene analysis,
3. Identify and differentiate the types of pattern evidence and explain their respective importance in crime scene reconstruction,
4. Identify and explain Personal Identification Patterns that identify a person,
5. Identify and explain the processes for analyzing questioned documents,
6. Identify and explain the processes for analyzing tool mark and firearm evidence,
7. Identify the three methods of DNA typing,
8. Explain the procedures for the collection and preserving DNA evidence to prevent contamination,
9. Identify and differentiate the chemical and material evidence in Arson and Explosives crime scenes, and

10. Identify and Differentiate depressant, stimulant, hallucinogen, and narcotic substances and explain the methods of analyzing each type of substance in a forensic laboratory.

Course Scope and Content:

- Unit I Role of Forensic Science in the Criminal Justice System
- A. History of forensic science
 - B. Current role of forensics in the criminal justice system
 - C. Types of forensics
 - D. Preparation for working in forensic science
- Unit II The Crime Scene
- A. Types of crime scenes
 - B. Crime scene analysis
 - C. Crime scene processing
 - D. Crime scene processing versus analysis
 - E. Crime scene advanced technology – crime scene reconstruction
- Unit III Analysis of Pattern Evidence in Investigations
- A. Types of pattern evidence
 - B. Use of pattern evidence in crime scene reconstruction
 - C. Pattern evidence
 - a. blood spatter patterns
 - b. glass fracture patterns
 - c. track and trail patterns
 - d. tire and skid mark patterns
 - e. clothing and article or object patterns
 - f. gunshot residue patterns
 - g. projectile trajectory patterns
 - h. fire burn patterns
 - D. Physical pattern evidence
 - E. Classification of physical patterns
 - F. General principles in physical pattern comparisons
 - a. impression and striation marks
 - b. footwear, tire and other impressions
 - c. weapon, tool and object marks
 - G. Trace and transfer evidence
- Unit IV Principles of Fingerprint Identification
- A. Personal Identification Patterns (PIP)
 - B. Fingerprint processing
 - a. collection and preservation of fingerprints
 - b. classification
 - c. comparison
 - C. Other Personal Identification Patterns (PIP) processing
 - a. collection and preservation
 - b. classification

c. comparison

- Unit V Analysis of Document Evidence
- A. Types of questioned documents
 - B. Processes for analyzing questioned documents
 - a. handwriting comparison
 - b. non-handwriting document examination
 - C. Recognition, collection, and preservation of document evidence
- Unit VI Firearms and Tool Mark Analysis
- A. Processes for analyzing tool mark and firearm evidence
 - B. Tool mark definition
 - C. Firearms examination
 - D. Firearms evidence examination
 - E. Firearms evidence for reconstruction
- Unit VII Collection, Preservation and Analysis of DNA Evidence
- A. Current DNA typing methods
 - B. Collection and preservation of biological evidence for DNA typing
 - C. DNA Analysis and Typing
 - a. genetics, inheritance, and genetic markers
 - b. nuclear DNA
 - c. mitochondrial DNA
 - D. Databasing and CODIS
 - E. Strengths, limitations, promises and hype
- Unit VIII Arson and Explosives Evidence
- A. Arson and explosives
 - B. Forensic evidence
 - a. chemical
 - b. material
 - C. Understanding combustion
 - D. Investigating suspicious fires
 - E. Recovery of ignitable liquid residue from suspicious fire scenes
 - F. Laboratory analysis of debris and other samples
 - G. Characteristics of explosives and explosions
- Unit IX Types of Controlled Substances Evidence
- A. Types of controlled substances
 - a. depressant
 - b. stimulant
 - c. hallucinogen
 - d. narcotic
 - B. Analysis methods for controlled substances in a forensic laboratory
 - a. depressant
 - b. stimulant
 - c. hallucinogen

- d. narcotic
- C. Toxicology: ante-mortem and postmortem

Learning Activities Required Outside of Class:

The students in this class will spend a minimum of 6 hours per week outside of the regular class time doing the following:

1. Studying textbook(s) or other materials
2. Completing required reading including case studies
3. Completing required written exercises
4. Completing project assignments
5. Library research
6. Internet research

Methods of Instruction:

1. Lectures
2. Class discussions
3. Audio/Visual presentations
4. In- class scenarios
5. Group discussion
6. Research and study of materials

Methods of Evaluation:

1. Substantial writing assignments including:
 - a. essay exams
 - b. research paper using APA or other generally accepted social science format
2. Objective and subjective examinations/quizzes
3. Case analysis
4. Projects
5. Homework assignments
6. In class exercises/presentations
7. Forum responses and interaction with other students based on assigned readings from criminal justice literature/or internet sites